

## **REMARKS**

The application includes claims 1-10 and 12-24 prior to entering this amendment.

The Applicant amends claims 1, 2, 4, 5, 7, and 8.

The Applicant adds new claim 31. No new matter is added.

The application remains with claims 1-10, 12-24, and 31 after entering this amendment.

### **Summary of Telephonic Examiner Interview**

Applicant's attorney spoke with Examiners Kau and Moore on June 23, 2009 regarding the rejection of claims 1 and 19 over the reference Lee in view of Su. Applicant's attorney discussed how the deficiencies of the combination of Lee and Su were similar to those pointed out in Applicant's argument dated February 25, 2009 against the combination of Lee with the Selby and Irie references that were previously used to reject claims 1-9 in the November 17, 2008 Office Action. No agreement was reached.

### **Claim Rejections - 35 U.S.C. § 101**

The Examiner rejected claims 1-9 under 35 U.S.C. § 101.

Without admitting the propriety of the rejection, Applicant amends claims 1-9 to recite "A method performed by a scanner." Applicant respectfully requests removal of the rejection of claims 1-9.

### **Claim Rejections - 35 U.S.C. § 103**

The Examiner rejected claims 1-2, 10, 15, 18-20 and 24 under 35 U.S.C. § 103(a) over Lee *et al.* (U.S. Patent 6,178,015) in view of Su (U.S. Patent 6,233,011).

The rejection is traversed.

Lee is directed to a scanner which includes an optical ruler that is used to compute the moving steps of a step motor (Abstract). Alternating black and white blocks of the optical ruler are arranged along the scanning direction to locate the position of the image sensor (col. 2, lines 37-67). A difference in gray levels between the white and black blocks allows the scanner to identify the transition of the step motor from one block to the next block (col. 2, lines 9-16 and col. 2, line 65 to col. 3, line 7).

In rejecting claim 1, the Examiner acknowledged that Lee fails to disclose *determining a compensational gray level value with respect to the actual gray level value for each of the pixels, wherein the compensational gray level value is based at least in part on the correctional gray level value and the actual gray level values for each of the pixels scanned from the document*, as recited by claim 1, and instead alleged that Su discloses these features (page 5, final paragraph to page 6, first full paragraph, of the May 5, 2009 Office Action). Applicant respectfully disagrees.

According to Su, a white plate is scanned about 20 lines to calculate an average white-level  $G'(X)$  for each x coordinate of the contact image sensor (col. 4, lines 20-30). Su's microprocessor 36 then compensates the gray-scale  $g(x,y)$  of each pixel in the scanned image range according to the average white-level  $G'(X)$  stored in memory (col. 4, lines 33-43). Su is an example of a calibration device described in Applicant's Background, wherein the calibration pattern is scanned prior to scanning the document (Fig. 1 and page 2, lines 10-13 of Applicant's specification).

**The combination of Lee and Su fail to disclose the features recited by claim 1, when read in its entirety.**

The Applicant notes that under MPEP §2143, an obviousness rejection must disclose one or more references that teach every claim element or would be obviously modified by one skilled in the art to teach every claim element. MPEP §2143 further requires that there be some suggestion in the references or from the prior art as a whole that would motivate one skilled in the art to combine the references, as well as a reasonable expectation of success. This is further supported by the recent *KSR* decision, whereby the Supreme Court acknowledged the importance of identifying “a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does” in an obviousness determination. *KSR*, 127 S. Ct. 1727 at 1731 (2007). Additionally, if one of the references ‘teaches away’ from the combination of references (i.e., teaches away from the missing claim element), it is strong evidence of non-obviousness. The Applicant also points out that claim elements must be read together as a whole rather than in a vacuum. That is, each element must be read in consideration of the other elements in the claim.

Even if combined, the references fail to disclose the recited features

One skilled in the art would appreciate that a combination of Lee and Su would suggest using both Su's white plate and Lee's optical ruler separately in the resulting system, since they are directed to performing different operations. The white plate of Su would be scanned 20 times prior to scanning the image to determine the average value  $G'(X)$  used for gray level compensation, and additionally the optical ruler of Lee would be used to control a position of the step motor. In that case, any gray level read from Lee's optical ruler would not be used to determine the Su's white level value  $G'(X)$ , and similarly any gray level read from the Su's white plate would not be used to control a position of Lee's step motor. In that case, the combination would fail to disclose the features recited by claim 1 on its face, since the gray-scale values of the white plate would be read prior to scanning any document, and since the white level read from the optical ruler are inapplicable to compensate for image brightness in a scanned image.

The references teach away from the proposed combination

In the instant rejection, the Examiner appears to be suggesting that one skilled in the art would be able to use the gray level value determined in Lee and substitute this as the gray level values used to calculate the average white-level  $G'(X)$  of Su. According to Su, uniformity problems in a contact image sensor (CIS) result in a wide variation of voltage levels associated with scanning identical white pixels (col. 1, lines 27-43). Su solves this problem by scanning 20 lines of a white plate and taking an average value of the white levels for a similar x coordinate of each of the 20 lines. Assuming Su were combined in the manner proposed by the Examiner, Su's microprocessor 36 would be unable to calculate the average white-level  $G'(X)$  while scanning a first line of the image, since only one block of Lee's optical ruler would be read. Since Su has identified that relying on a single pixel value to obtain the white value is unreliable, Su teaches away from such a combination that would require reading a single block of the optical ruler for each line of the scanned image.

The combination would render the resulting system inoperable

By way of further example, the Examiner suggests that Lee discloses *scanning a continuous longitudinal calibration pattern while scanning the document to determine a*

*correctional gray level value associated with the calibration pattern*, as recited by claim 1 (page 5, section 6 of the May 5, 2009 Office Action). The Examiner appears to be treating these recited features separately from those where Su was used to reject claim 1. Lee's gray level is used entirely for a different purpose than that disclosed by Su in scanning a white plate. Since Lee's optical ruler includes alternating white and black blocks, Su's microprocessor would only obtain white values for the alternating white blocks. The black blocks provide a zero brightness at point Pb (see Fig 3 of Lee). Accordingly, Lee's optical ruler is wholly unsuitable for compensating the gray-scale values of Su. Such a combination would be rendered inoperable.

#### Impermissible Hindsight

According to MPEP 2142,

To reach a proper determination under 35 U.S.C. 103, the examiner must step backward in time and into the shoes worn by the hypothetical "person of ordinary skill in the art" when the invention was unknown and just before it was made. In view of all factual information, the examiner must then make a determination whether the claimed invention "as a whole" would have been obvious at that time to that person. Knowledge of applicant's disclosure must be put aside in reaching this determination, yet kept in mind in order to determine the "differences," conduct the search and evaluate the "subject matter as a whole" of the invention...However, impermissible hindsight must be avoided and the legal conclusion must be reached on the basis of the facts gleaned from the prior art.

All of the references cited by the Examiner that are directed to compensating gray levels in an image operate similarly as described in Applicant's Background, where a calibration plate is scanned prior to scanning a document. Applicant respectfully submits that combining the references in the manner proposed by the Examiner would only be obvious with the benefit of impermissible hindsight and in view of Applicant's own specification. Rather, as Applicant discusses above, one skilled in the art would appreciate that any combination of Su with Lee would suggest using both Su's white plate and Lee's optical ruler separately in the resulting system, since they are directed to performing different operations. There is no teaching that suggests that the alternating white and black block optical ruler of Lee could be replaced or substituted with the white plate of Su, or that the white plate of Su could be replaced or substituted with the optical ruler of Lee.

Accordingly, Applicant respectfully submits that Lee fails to disclose *scanning a continuous longitudinal calibration pattern while scanning the document to determine a*

*correctional gray level value associated with the calibration pattern, and that Su fails to disclose determining a compensational gray level value with respect to the actual gray level value for each of the pixels, wherein the compensational gray level value is based at least in part on the correctional gray level value and the actual gray level values for each of the pixels scanned from the document, when the features of claim 1 are read as a whole.*

Claims 10 and 19 are believed to be allowable for similar reasons as claim 1. As claims 2, 15, 18 and 20 depend from independent claims 1, 10, or 19 they are believed to be patentable over the art for at least the foregoing reasons, as well as for the further novel features recited respectively therein. Withdrawal of the rejection of claims 1-2, 10, 15, 18-20 and 24 is respectfully requested.

The Examiner rejected claims 4, 5, 7 and 8 under 35 U.S.C. § 103(a) over Lee *et al.* in view of Selby (U.S. Patent 5,404,232) and further in view of Chien (U.S. Patent 6,480,306).

The rejection is traversed.

Lee has been discussed in detail above. Selby was discussed in detail in the response dated February 25, 2009. Chien provides yet another example of a calibration device described in Applicant's Background, wherein the calibration pattern is scanned prior to scanning the document (Fig. 1 and page 2, lines 10-13 of Applicant's specification).

According to Chien, "when the scanner is about to scan an object 40, the CIS module 30 first moves along the scanning path to scan the three corrective elements (white 32, gray 34, and dark 36)" (col. 4, lines 18-22). Chien goes on to describe that "the gray levels of these corrective elements are pre-defined and pre-stored in the memory 39 of the scanning apparatus" (col. 4, lines 47-50). Whether the corrective elements are pre-scanned, pre-defined, or pre-stored, Chien teaches that they are nevertheless determined prior to scanning the object (col. 5, lines 23-24).

As the Examiner has provided new grounds of rejection of claims 4, 5, 7, and 8 in view of Applicant's previous arguments related to Selby in the Response dated February 25, 2009, and as Chien teaches essentially the same method as Selby of pre-scanning corrective patterns before scanning the image, Applicant respectfully submits that the present rejection of claims 4, 5, 7, and 8 should be similarly withdrawn.

Claims 4 and 7 are believed to be allowable for similar reasons as claim 1 as discussed above, by replacing some or all the references to Su with corresponding sections of Chien. As

claims 5 and 8 depend from independent claims 4 or 7 they are believed to be patentable over the art for at least the foregoing reasons, as well as for the further novel features recited respectively therein. Withdrawal of the rejection of claims 4, 5, 7 and 8 is respectfully requested.

The Examiner rejected claims 3, 6, 9, 12-14, 15, 17, and 21-23 under 35 U.S.C. § 103(a) over Lee *et al.* and variously in view of Su, Selby, Chien, and Horiuchi *et al.* (U.S. Patent 6,445,469).

As claims 3, 6, 9, 12-14, 15, 17, and 21-23 depend from independent claims 1, 4, 7, 10, or 19 they are believed to be patentable over the art for at least the foregoing reasons, as well as for the further novel features recited respectively therein. Accordingly, withdrawal of the rejection of claims 3, 6, 9, 12-14, 15, 17, and 21-23 is respectfully requested.

Any statements made by Examiner that are not addressed by Applicant do not necessarily constitute agreement by the Applicant. In some cases, Applicant may have amended or argued the allowability of independent claims thereby obviating grounds for rejection of the dependent claims.

## CONCLUSION

For the foregoing reasons, the Applicant respectfully requests reconsideration and allowance of claims 1-10, 12-24, and 31. The Examiner is encouraged to telephone the undersigned if it appears that an interview would be helpful in advancing the case.

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Respectfully submitted,

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